

## PROCEEDINGS OF LEARNED SOCIETIES.

## GEOLOGICAL SOCIETY.

May 25, 1881.—Robert Etheridge, Esq., F.R.S.,  
President, in the Chair.

The following communications were read:—

1. "On the Discovery of some Remains of Plants at the Base of the Denbighshire Grits, near Corwen, North Wales." By Henry Hicks, M.D., F.G.S. With an Appendix by R. Etheridge, Esq., F.R.S., Pres. Geol. Soc.

Traces of these fossils were first observed in 1875, by the author, in Pen-y-glog quarry, about two miles east of Corwen. Further research has resulted in the discovery of more satisfactory specimens, which have been examined by Messrs. Carruthers, Etheridge, and E. T. Newton. Among them are spherical bodies resembling the *Pachytheca* of Sir J. D. Hooker, from the bone-bed of the Ludlow series, supposed to be Lycopodiaceous spore-cases; also numerous minute bodies, stated by Mr. Carruthers to be united in threes and to agree with the forms of the microspores of Lycopodiaceæ, both recent and fossil; and some fragments which may belong to these plants, and others probably belonging to plants described by Dr. Dawson from the Devonian of Canada under the name of *Psilophyton*. The above testify to the existence of a very rich land-flora at the time. Mixed up with these, however, are numerous carbonaceous fragments of a plant described also by Dr. Dawson from the Devonian of Canada, which he referred to the Coniferæ, but which is, according to Mr. Carruthers, an anomalous form of Alga. The former called it *Prototaxites*; the latter renamed it *Nematophycus*. Numerous microscopical sections, showing the beautiful structure of this interesting plant from the specimens found at Pen-y-glog, have been examined by Mr. Etheridge and Mr. Newton; and their conclusions agree with those of Mr. Carruthers. The evidence seems to show that at this mid-Silurian period the immediate area where the plants are now discovered must have been under water, and that the mixture of marine and dry-land plants took place in consequence of floods on rapid marine denudation. The author indicated that the land-areas must have been to the south and west, chiefly islands surrounded by a moderately deep sea in which Graptolites occurred in abundance. The position of these beds may be stated to be about 2000 feet below the true Wenlock series, and about the horizon of the Upper Llandovery rocks.

2. "Notes on a Mammalian Jaw from the Purbeck Beds at Swanage, Dorset." By Edgar Willett, Esq. Communicated by the President.

Excavations were undertaken last summer in this locality (Durlstone Bay, Swanage), where, rather more than twenty years since,

the jaws of sixteen new species of Mesozoic Mammalia were found by Mr. Beckles. These, though less successful than the former, resulted in the discovery of the larger part of the right mandibular ramus of a marsupial, about  $1\frac{1}{2}$  inch long. Six teeth are preserved *in situ*. This specimen was described and its affinities discussed by the author. He referred it to the genus *Triconodon*, described by Prof. Owen in his monograph (Palæont. Soc. 1871). The peculiarity of this specimen is that it has four teeth having the form of true molars, while those previously found have only three. *Triacanthodon*, indeed, has four true molars; but between it and the specimen described there are some important differences of detail. The dental peculiarity may be explicable on either of two hypotheses suggested to the author by Prof. Flower; and he thinks it better to refer it to *Triconodon mordax* than to attribute it to a new species of the genus.

June 8, 1881.—Robert Etheridge, Esq., F.R.S.,  
President, in the Chair.

The following communication was read:—

“The Reptile Fauna of the Gosau Formation, preserved in the Geological Museum of the University of Vienna.” By Prof. H. G. Seeley, F.R.S., F.L.S., F.G.S.; with a Note on the Geological Horizon of the Fossils, by Dr. Edward Suess, F.M.G.S.

The collection of Reptiles described in this paper was obtained at Neue Welt, near Wiener Neustadt, by tunnelling into the freshwater deposits which there yield coal. A part of the collection was described by Dr. Bunzel in 1871; but the author's interpretation of the fossils rendered a reexamination of the whole collection necessary. All the species hitherto discovered are new, and, with the exception of those referred to *Crocodylus*, *Megalosaurus*, *Ornithochirus*, and *Emys*, are placed in new genera. Nearly all the bones are more or less imperfect.

The *Iguanodon Suessii*, of Bunzel, was referred to a new genus, *Mochlodon*, characterized by the straight anterior end of the ramus of the lower jaw, and by the vertical bar in the middle of the teeth of the lower jaw. There appear to be two teeth in the ramus. The tooth referred to the upper jaw has several uniform parallel vertical bars. A small parietal bone, referred by Bunzel to a Lizard, is considered by the author to belong probably to the same species; and, with some doubt, he associated with it the articular end of a small scapula.

Bunzel's *Struthiosaurus austriacus* was redescribed by the author, who indicated that the bones of the base of the brain-case, regarded by Bunzel as the quadrate bones, really belong to the occipital region, which necessitates a different interpretation. The foramina along the base of the skull were also described as presenting one of the characteristics of the Dinosaurian order. The base of the skull of *Acanthopholis horridus* was described, to show its relation to the

above type, with the view of demonstrating its Scelidosaurian affinities.

The greater part of the remains were referred by the author to a new genus, *Cratœomus*; some of these had been figured by Bunzel as "Crocodili ambigui," and others as belonging to *Scelidosaurus* and to a new Lacertilian genus, *Danubiosaurus*. To *Cratœomus* he referred mandibles, teeth, vertebræ from all parts of the column except the sacrum, dermal armour, and the chief bones of the limbs. Two species were distinguished, *C. Paulowitschii* and *C. lepidophorus*. The former, which is much the larger, was named in honour of M. Paulowitsch, who voluntarily superintended the work at Neue Welt. The author stated that he regarded these animals as carnivorous, and that, unlike the typical Wealden Dinosaurs, they were not Kangaroo-like in habit, but had strongly developed fore limbs, as indicated in the proposed generic name.

Two teeth belonging to *Megalosaurus* were described as representing a new species, *M. pannoniensis*, characterized by the crown being shorter and broader than in previously described forms. A fragment, regarded by Bunzel as the thoracic rib of a Lizard, was interpreted as the distal end of the femur of a Dinosaur, and named *Ornithomerus gracilis*. The lower jaw, described by Bunzel as *Crocodilus carcharidens*, of which a maxillary bone also occurs, was made the basis of a new genus, *Doratodon*, probably Dinosaurian, judging from the lateral position of the apertures of the skull and the characters of the teeth. The genus *Rhadinosaurus* was founded upon the humerus and femur, the latter having been regarded by Bunzel as the dorsal rib of a Crocodile; the species was named *R. alcimus*. *Oligosaurus adelus* was described as presenting Lacertilian characters in combination with some Dinosaurian peculiarities. The remains include the humerus, femur and scapula, and two vertebræ, which were regarded by Bunzel as foetal vertebræ of a Dinosaur. The genus *Hoplosaurus* was founded on some vertebræ, fragments of limb-bones, and dermal armour; it shows, with distinctive peculiarities, a certain resemblance to *Hylæosaurus*.

A procelian Crocodile was represented by many parts of the skeleton—some figured by Bunzel as Lacertilian, others as Crocodilian. It is remarkable for having a buttress supporting the transverse process in the lumbar region. The author calls it *Crocodilus proavus*.

The specimen figured by Bunzel as the ilium of his *Danubiosaurus anceps* was stated by the author to be a costal plate of a large Chelonian, in which, apparently, the margins of these plates remained separate through life. Skull-bones believed to belong to the same animal are strongly sculptured. The author named the species *Pleuropeltus lissus*. Three or four species of Emydians were said to be indicated by isolated plates, the largest of which was named *Emys Neumayri*.

The only specimen referable with certainty to a Lizard is a small vertebra of elongated form, regarded as indicating a new genus and species, named *Spondylosaurus gracilis*. Of Pterodactyls there are

but few remains; but these certainly represent two genera. The author only describes one species, to which he gives the name of *Ornithochirus Bunzeli*. There are, in all, probably ten genera of Dinosaurs and five genera of other groups, making fifteen in all.

The paper was supplemented by a note by Prof. Suess on the geological relations of the beds at Wiener Neustadt to those of the Gosau valley, in which he comes to the conclusion that they are older than the true Turonian deposits, and especially older than the zone of *Hippurites cornu vaccinum*.

June 22, 1881.—R. Etheridge, Esq., F.R.S.,  
President, in the Chair.

The following communications were read:—

1. "Description of a new Species of Coral from the Middle Lias of Oxfordshire." By R. F. Tomes, Esq., F.G.S.

The species of Coral described in this paper was referred by the author to the genus *Thamnastræa* and the subgenus *Synastræa*, under the name of *Thamnastræa Walfordi*, in honour of its discoverer, Mr. E. A. Walford. The specimen was from the *spinatus*-beds of the Marlstone at Aston-le-Walls, Oxfordshire. Like *Thamnastræa Etheridgei*, previously described by the author (Q. J. G. S. xxxiv. p. 190) from the Middle Lias of Oxfordshire, this species presents the same subgeneric characters as *T. arachnoides* of the Coral Rag of Steeple Ashton; and the author remarks upon the fact that the only species known from the English Lias resemble Corallian rather than Inferior-Oolite forms.

2. "Note on the Occurrence of the Remains of a Cetacean in the Lower Oligocene Strata of the Hampshire Basin." By Prof. J. W. Judd, F.R.S., Sec. G.S. With a Note by Prof. H. G. Seeley, F.R.S., F.G.S.

The author referred to the rarity of remains of marine Mammalia in the Lower Tertiaries of Britain, the only recorded species being *Zeuglodon Wanklyni*, Seeley, from the Barton Clay. The single specimen in his possession was obtained at Roydon, about a mile and a half north of Brockenhurst, where the beds exposed in the brickyard consist of sandy elays crowded with marine fossils, and resting upon green freshwater clays with abundance of *Unio Solandri* belonging to the Headon series. The author briefly referred to the question of the horizon of these deposits, which he regards as belonging to the same great marine series as the beds of Brockenhurst and Lyndhurst, which he holds to be Tongrian or Lower Oligocene.

The Cetacean vertebra obtained by Prof. Judd was stated by Prof. Seeley to be a caudal vertebra, probably the eighth, but not later than the twelfth, of a species belonging or closely related to the

genus *Balenoptera*, and especially approaching *Balenoptera laticeps*, a species of the North Sea which appears to range to Japan. Prof. Seeley regarded it as representing a new species, which he named *Balenoptera Juddii*.

3. "Description of a Peat-bed interstratified with the Boulder-drift at Oldham." By G. H. Hollingworth, Esq., F.G.S.

The author described a deposit of peat interstratified with Boulder-drift, exposed in a railway-cutting at Rhodes Bank, Oldham. The depth of the section was only 14 feet; and it showed:—

1. Soil ..... 8 to 10 inches.
2. Boulder-clay, with beds and strings  
of peat ..... 2 to 6 feet.
3. Main bed of peat, containing mosses,  
exogenous stems, and beetles .... 2 inches to 1 ft. 9 in.  
(average 15 inches).
4. Fine blue clay (floor) ..... 2 inches to 1 foot.
5. Current-bedded coarse sand and fine  
gravel ..... 4 inches to 2 feet.
6. Boulder-clay.

The mosses in the peat are of northern type.

4. "Silurian Uniserial *Stomatopora* and *Ascodictya*." By G. R. Vine, Esq. Communicated by Prof. P. Martin Duncan, F.R.S., F.G.S.

For the genus *Stomatopora* the name *Alecto* has priority; but as that had previously been applied to a member of the class Echinodermata, the author preferred the later name. Species of the genus have also been described under the generic name *Aulopora*. The author has received from Mr. Maw more than two hundredweight of washed *débris* of Wenlock shale, about thirty pounds of which, from twelve localities, he has examined. It contains a moderate amount of Polyzoan remains, generally water-worn. The author described the following species—*Stomatopora inflata* and *dissimilis*, *Ascodictyon stellatum* and *radians* (with a variety *siluriense*), and discussed the characters of the genera.

5. "On a new *Comatula* from the Kelloway Rock." By P. H. Carpenter, Esq., M.A., Assistant Master at Eton College. Communicated by the President.

The specimen, to which the author's attention was called by R. Etheridge, jun., Esq., is in the national collection; he proposes for it the name *Actinometra calloviensis*. The specimen is from the Kelloway rock, of Sutton Benger; the whole diameter is 15 mm.; diameter of centrodorsal 6 mm. Three species of this genus are already known from the British Jurassic rocks: two are only known from their centrodorsals, which are each different from that of *A. calloviensis*; the third is *A. cheltonensis*, from the Inferior Oolite,

known only by its radials and basals, which are different from those of the present specimen. To this *Antedon Picteti*, from the Valangian of the continent, has some resemblance. It is, however, a true *Actinometra*, differing chiefly from existing forms in retaining its primary basals without their having undergone transformation into a rosette.

6. "Descriptive Catalogue of Ammonites from the Sherborne District." By Sydney S. Buckman, Esq. Communicated by Prof. J. Buckman, F.G.S., F.L.S., &c.

In this paper the author gave a list of the Ammonites from the Inferior Oolite of the neighbourhood of Sherborne, in which he enumerated about 47 species, and stated that he had about 50 more which appear to be undescribed; fully one half have the mouth-termination perfectly preserved. The author indicated the zones into which the rocks furnishing these Ammonites could be divided, as shown at Osborne, near Sherborne, at Wyke quarry, and at Bradford Abbas, and indicated the characteristic fossils of each; he also gave the principal synonyms of the species referred to, and discussed some of their characteristic peculiarities.

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#### BIBLIOGRAPHICAL NOTICES.

*Journal and Proceedings of the Royal Society of New South Wales for 1879.* Vol. xiii. 8vo. Sydney, 1880.

ASTRONOMY, Geology, Zoology, Meteorology, and Microscopy supply the chief matter of this vol. xiii. of the 'Journal and Proceedings of the Royal Society of New South Wales.' The Rev. J. E. Tenison-Woods's illustrated Monograph of the Genus *Distichopora*, Dr. Hector's comparison of the geological formations of New Zealand with those of Australia, H. C. Russell's account of the Wentworth hurricane (with a chart), and his description of the "Gem" cluster in Argo, are good examples of Australian scientific work, and, with the other contents of the volume, will be found to be highly useful contributions to science and general knowledge. We must add that the Anniversary Report by the Vice-President, the Hon. Professor Smith, gives a most genial and noteworthy biography of the late Rev. W. B. Clarke, including a careful *résumé* of his geological labours.

*Proceedings of the Bristol Naturalists' Society.* New series, vol. viii. part 1, for 1879. 8vo. Bristol, 1880.

DR. S. P. THOMPSON contributes a most interesting account of some optical illusions, especially as concerns the "strobic circles," with